

Stretch It Out

1. Answers will vary, but students should see an increase in the distance they were able to reach after stretching.
2. Students should be able to reach slightly farther at the start of each trial after stretching for a week.
3. Stretching before and after exercise helps the body warm up and cool down, increases flexibility, keeps muscles healthy, and decreases the chance of muscle injury.

Taking a Midnight Stretch

1. Your height increases slightly each morning. During the night, the cartilage discs between the vertebrae in the spine expand, creating a temporary height increase.
2. Because there is little gravity in space, the cartilage discs in an astronaut's spine expand, holding water in them, and thus giving the astronaut added height while he or she is in space.
3. No, the astronaut will not continue to grow. Once the cartilage has expanded, it will not get any larger. Astronauts will also return to their normal height when they return to Earth's gravity.
4. Answers will vary, but students should understand that the astronaut suit must be a closed system, and yet it must be flexible enough to accommodate the change in height.

A Spindly Spine

1. The model is very flexible, allowing movement in several different directions.
2. If the backbones were fused together, bending would not be possible and other movements would be severely limited.
3. Flexibility is one component of physical fitness. We need flexibility in daily life to do tasks as simple as fastening a button or as complex as playing soccer. Flexibility can increase our range of motion, relieve muscle soreness, and reduce injury risk.

Finding Physical Fitness

M C E A N C A M P R Y Y T I L I B I X E L F
 U E M O M G A S S E D I T E J O I N T I I I
 S M T A M O R P M E T S Y A H E R A E L B G
 C O A A E P E R I A K M C I C R I P A O A N
 U N M C B I O M B N G K M S T M N T R T S E
 L H E E R O S T E O P O R O S I S T E H A O
 O I A I N O L K S E I R O L A C E E S Y L U
 S J G L Z D N I M D C C L T U O S R I D M F
 K L P A E T U U S C T O F L P I S M S R E I
 E A I E E E W R T M Z N S O M N E O T S T L
 L S M W R T I A A R T V R U E E R H I T A A
 E X E R C I S E V N I O R M R I T A V R B M
 T N L D S A I N D E C E E M S A S L E E O E
 A G E A R S Z A I E S E N O I E P I E N L N
 L I G A M E N T S G P T W T B R A N X G I T
 S S P A C E S T T T I O O T S O C E E T C H
 Y E N S I T Y C N R R E R T E B E I R H R S
 S E N E I G P S E E E S R O E I A C C E A N
 T E R T C E F F I S I L A I R C C T I C T I
 E K A T I I T G R D T B M R B I L L S A E E
 M U S C L E S I T D R I E I O Y T I E F R T
 G A E M O H S O U I T E N A T I V E N R U O
 P E R M E A B L N C S N O K K I N Y N U P R
 M F A S E T A R D Y H O B R A C O T S S R P